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P831

1835

A

POPULAR ESSAY

ON THE

VALUE AND PRESENT CONDITION OF THE PRACTICE OF

VACCINATION;

EMBRACING A CONSIDERATION OF ALL THE POINTS
IMPORTANT TO BE UNDERSTOOD BY THE HEADS
OF FAMILIES, AND PARTICULARLY OF

RE-VACCINATION.

BY A PHYSICIAN.

31554

"When groundless prejudice shall cease to operate, when private emolument shall be sacrificed to the general good, the name of JENNER will be pronounced with rapture by a grateful world. I would rather be Dr. Jenner than any man who has been born during the last thousand years."—*Dr. Bedingfield.*

NEW YORK:
HENDERSON GREENE, 395 BROADWAY.

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W. Lunt Bradbury, Printer.

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Entered according to an Act of Congress, in the year 1835, by HENDERSON
GREENE, in the office of the Clerk of the District Court of the Southern District
of New York.

POPULAR ESSAY

ON THE VALUE AND PRESENT CONDITION OF THE PRACTICE

OF VACCINATION.

NEARLY forty years have now elapsed since the first Vaccination was performed upon the human subject. In this period theories have been verified, doubts removed and prejudices laid at rest; and the usefulness of vaccination has received a triumphant confirmation. But, during this period also, a circumstance has been brought to light by the combined observations of the public and the profession, which is likely to invest the subject with a new and absorbing interest. Owing to causes hereafter to be alluded to, it has been thought that the protective power of vaccination is on the decline; and it becomes a matter of deep moment to every parent to understand whether, and how far, it is justly entitled to his confidence, and how he is to give to his offspring the full benefit of its preservative effect.

To dilate upon the horrors of small-pox would be a work of super-erogation. Against this dreadful scourge of our race, we possess two securities, differing in their nature not less than in their effects. By the one, the introduction of *small-pox matter* into the body, we subject the person with certainty to an attack of that malady; but one which, indeed, we have every reason to believe will be mild and benignant, and by which we consider him to be secured, in all probability, for the future. To this measure there exist three objections of unequal force. First, the attack subsequent to the inoculation

may be severe, nay fatal ; and it is so in the proportion of one in every two hundred and fifty cases, at the lowest calculation ; the immediate danger then is great, whilst that which it is intended to obviate is remote. Again, it may be sufficient to call into action the latent seeds of disease, and thus shorten existence. Small-pox under any form is to be dreaded, for however mild it may be, its consequences, glandular swellings, boils, carbuncles, diseases of the eyes, blindness, deafness, &c. are always to be apprehended. Secondly, it is indisputably proved, that in a certain proportion, secondary cases of small-pox, that is, small-pox for the second time, does occur in inoculated individuals ; and this second attack is almost always malignant, and too often followed by death ; nor is there wanting evidence to prove that this mortality is in a much larger ratio than that from the small-pox which occasionally follows vaccination. But the third, and weightiest argument against inoculation with small-pox matter is, that by performing it, this foul pestilence is perpetually cherished and reproduced, and that to save one human being, the lives of thousands are annually jeopardized.

The small-pox being communicable by volatile effluvium, it is evident that an unprotected person, coming within the range of its action, is liable to an attack. He, in his turn, communicates it to all who may expose themselves to him during his illness. Suppose that among these are several vaccinated persons ; they become affected, it is true, in this way, with the mild disease called *varioid* ; but it must be remembered that every one of them is capable of giving *true* small-pox to any unprotected person ; and thus, by the practice of inoculation, are eternally generated new starting points of contagion, by which the disorder is continually gaining fresh strength, extending farther and wider its fatal ravages, and endangering every life, without in the remotest degree approaching to extermination. We shall cite instances in support of this fact.

In the Commentaries of Dr. J. Clarke on the Diseases of Children, we are told that an apothecary was indicted in

1815, in the court of King's bench, for having been the means of propagating the small-pox, by ordering children whom he had inoculated, to be brought to his house through the public streets with the disease upon them. And it was proved in evidence, that from one of these children several others caught the natural small-pox, and *six* actually died.

In M'Intosh's Practice of Physic, published in 1833, we find the following words:---“ Since the first edition of this work, I have had occasion to attend fifty cases of small-pox, *all of which* were distinctly traced to the imprudence of a woman who exposed her unvaccinated child to the contagion whilst visiting her sick friend. Of *fifteen unprotected, eleven died*, and thirty five who had been vaccinated all recovered after slight attacks.” And in the Report of the National Vaccine Institution, for 1833, Sir Henry Hallford says, “ The small-pox has been prevailing with its usual fatal results, in various parts of the country; and magistrates frequently express their regrets that they cannot prevent ignorant persons from *going about to inoculate*. But we still live in hopes that the good sense of the people will discover the superior advantages of vaccination, when it is repeatedly stated to them that, of an equal number of persons vaccinated and inoculated, only so many of the former will be capable of taking small-pox, and that in a mild degree of the disease, as are found to die of the latter.”

An account of an epidemic at Roxbury, in Massachusetts, is now before us, which owes its origin to the same dangerous custom; and when to these facts we add, that previous to vaccination it was calculated that *forty millions died of small-pox in every century*, and that by Marshall's Tables of Mortality, it appears that the deaths increased in London, in the year 1739, (after the introduction of small-pox inoculation,) from one hundred and sixty, to three thousand two hundred and seventy one, we think that our readers will admit with an eloquent writer, “ *that although individuals may have profited by inoculation, it has destroyed more lives upon the whole than it has preserved, and has aggravated the sufferings of those*

who have not submitted to it, in a greater degree than it has relieved those who have availed themselves of its protection." To such a practice, God forbid that we should ever return; and may we succeed in showing in these pages, that through his mercy, we need never again, in all probability, resort to its aid!

The other security is that afforded by the process called Vaccination, of which some brief account may not be unacceptable to the majority of our readers. Many years before this step was introduced into the practice of medicine, it had been observed among those who had the care of cows in the county of Gloucester, in England, that the udders of those animals were liable to a disease vulgarly called the cow-pox; that the matter from the sores had the power of rendering those milkers whose hands were affected by it, insusceptible of the subsequent contagion of small-pox. After deep and anxious reflection, numerous experiments and repeated failures, Doct. Edward Jenner, of Berkeley, perfected his idea of inoculating the human subject with cow-pox matter, for the purpose of its security; and on the 14th of May, 1796, did actually introduce the vaccine matter into the arm of a healthy boy, produced the characteristic sore with which we are all now so familiar, and having afterwards subjected him to small-pox inoculation, found that his system successfully resisted its effects.

It were to fill these pages with unprofitable matter, to detail the difficulties under which vaccination labored before it assumed its present high consideration. It is sufficient that it has attained to it; and if, within the last few years, its lustre has been faintly dimmed by the passing breath of distrust, we hope in this little essay to renew its wonted brightness, and to show, that if, in the first ardor of joyful admiration, its claims were over-rated, there are yet facts enough in its favor, with each and every allowance, to compel public confidence, and to claim our everlasting gratitude for this great boon of Heaven.

Before we adduce our proofs of the effect of cow-pox in

resisting small-pox, let us take a brief survey of what man has gained by exchanging inoculation, which only modifies, for vaccination, which oftenest prevents, and always softens that disease. He has parted with a contagious malady, for one which is not so ; with a never-dying source of re-infection, for an affection whose effluvium is as harmless as the odour of the rose, or the breath of beauty ; with one before which friends shrink and hirelings flee, for one which does not take the tender infant from the mother's arms, when she is its subject. Vaccination leaves no disfiguring traces upon the countenance ; it awakens no dormant susceptibility to disease ; it entails no evils, nay more, it confers positive advantages ; it demands little or no confinement ; it is unattended with the risk, slight though it may be, to which inoculation must of necessity expose its subjects ; its action is silent, but it is great. Contrasted with it then, how numerous are its advantages ; and if we shall prove that its preventive powers are also at least equal, how grateful ought we to be for the blessing, and how eagerly should we avail ourselves of its benefits !

The disposition to contract small-pox is so general throughout the human race, that few persons are met with who resist it during their whole lives, when fully exposed to its influence. The records of this, and of other countries show us, that although lessened, the frequency of the occurrence of small-pox epidemics is still great and alarming ; the enemy still lingers about our portals, and may at any moment strike the fatal blow.* Let us recall to mind, not only our own risk, but the risk of others, if it find us unprepared for its attack ; and with the weight of other reasons, hereafter to be specified, we shall find the subject of this essay to be deserving of our most serious consideration.

The chief point which presents itself for examination, is

* The Annual Report of Mortality in this City, for the past year, gives two hundred and thirty three deaths from Small Pox, of which nearly one half (*one hundred and eight*), occurred between the 1st of October and the 31st of December, since when it has been steadily on the increase. The deaths by that disease from the 1st of January to the present time, (15th of March, 1835,) are *one hundred and seventy three* ; an average of *seventeen* per week !

as to the *true value* of vaccination as a preservative against small-pox infection. It cannot be doubted, and it had better be ingenuously confessed, that in the ardor of his discovery, the amiable and illustrious author of the practice of vaccination over-estimated its powers. He asserted "that the human frame, when it has felt the influence of the genuine cow-pox, is never afterwards assailable, at any period of its existence;" and further, "that in the cow-pox we have an antidote capable of extirpating from the earth, a disease which is every hour devouring its victims." Neither of these statements is accurate; and it is neither philosophical, nor needful to require them to be so. So long as the small-pox shall occur by spontaneous generation as well as by contagion, it is manifest, that even were vaccination more generally practised among the poorer classes, from whom the infection for the most part arises, the extermination of the malady is impossible, and that such a hope is vain and unfounded. Nor has it for many years been attempted, even by the most strenuous vaccinist, to maintain the truth of the former of these assertions; it is the public alone which has erred on this point. By scarcely a physician of the present day is such an argument supported. The doctrine of the temporary existence of the protective power of vaccination, is almost co-eval with its discovery; and though he was, as we have seen, at first an unbeliever on the subject, the great Jenner himself lived to see some of those whom he had vaccinated, labour under the modified secondary affection. It is true that the arguments by which he accounted for these cases may often be correct; that the vaccination may be spurious; that its healthy progress may have been interrupted; that some deterioration in the quality of the matter, though it inflame the arm, may yet leave a susceptibility to a second attack; that some persons have indeed such a tendency to variolous or small-pox impregnation, that not the natural small-pox itself will secure them against a subsequent seizure, and that certain epidemics have of late shown peculiar malignity.

But, admitting all the causes of failure which have been

urged in its defence, it cannot be denied that secondary small-pox has often occurred after unimpeachable vaccination. Zealous admirers as we are of that practice, we attempt to avoid neither the admission, nor the discussion to which it leads. We boldly proclaim it ; for upon its true merits alone do we desire to see our favorite measure repose. "It is only by a candid examination that we shall ever be able to determine that highly important point, how far the failures of vaccination are owing to causes under our control, and how far there exists a reasonable probability of obviating them, wholly or partially ;" or, to cite again the language of an able writer, "as tenacious advocates for vaccination, we are obliged to declare it as our opinion, that those who agree with us in this feeling, will do most justice to the cause of this preventive, by allowing that small-pox may occur after it ; and by insisting rather on the comparative safety, than the great infrequency of the disease under these circumstances. It is plain that even if vaccination were never to prove preventive, it is a less dangerous practice than inoculation, since it causes a safer and a milder disease." In 1822, we find Dr. James Johnson, of London, one of the most eminent physicians and journalists of the day, distinctly asserting that the *unqualifiedly* protective power of the vaccine process is now given up by all unbiassed practitioners : that its failures have been steadily and progressively on the increase for some years past ; and that, although he is an advocate for vaccination, he should be unwilling to recommend it in the same strenuous manner which he did ten years ago. There is evidence, lastly, to prove that many of the cases received into the Small-pox Hospital, London, are of this character. It is thus rendered certain that the process of vaccination has, like all human measures, the attribute of fallibility, and were we not enabled to offer incontestible proof of its continued claims to public support, our situation, between the dangers of the one measure, and the uncertainties of the other, would be deplorable indeed. Fortunately, to do this is in our power, and we

glory in asserting our confident belief, that vaccination still retains so much that is admirable, as shall cause it forever, in the opinion of the world, to be looked upon as one of the greatest blessings of a merciful Creator, and one to which no merited reproaches can be attached.

Of Vaccination, notwithstanding all its imperfections, it may safely be said, and we beg to impress the fact deeply upon our readers, *that in most instances, it stems small-pox entirely*; and that when it does not succeed in preventing, it so modifies that disease, as to render it scarcely recognizable as the same affection. It is important to remember that the modified disease thus produced is usually that called *Varioloid*, a mild disorder, which, though it differs in many points known to physicians, from true small-pox, and particularly in a diminution of severity and the absence of danger, much resembles it in the appearance of the eruption. We do not attempt to deny that small-pox of the most genuine form has supervened upon vaccination; we merely assert, without the possibility of contradiction, that in much the larger proportion of cases, in which it occurs at all, it is modified, and rendered, after *proper vaccination*, a mild and safe disease. To borrow again the emphatic words of one of the greatest ornaments of our profession, (written in 1826,) "while therefore, the absolute infallibility of cow-pox inoculation is no longer to be maintained, enough remains in support of its pretensions of being one of the most important discoveries in medicine, and one of the greatest blessings ever conferred on mankind." (Dr. Good.) To the same effect is the assertion of the celebrated and lamented Cuvier, that "were the discovery of vaccination the only one which medicine had of late effected, it would be sufficient to signalize forever our era, in the history of the Sciences, not less than to immortalize the name of Jenner, and to assign to him a pre-eminent place among the chief benefactors of humanity. And, yet further to impress upon the public mind the truth of our assertion, we quote from the most recent work published on the

subject in the capital of France, these words: "every thing proves that vaccination produces a protective effect equal to that of an eruption of the natural small-pox, without its certain inconveniences and its often serious dangers. It is true indeed, that it is not unqualifiedly protective; but the facts which are brought forward in opposition to its value, and most unjustly over-estimated, can produce no opinion unfavorable to vaccination, nor ought they to diminish an iota of the confidence it deserves, nor of the eternal merit which is due to the illustrious and immortal author of its discovery!"

We only claim that vaccination be allowed to be *as good* and *as effectual* a preservative against small-pox as the practice of inoculation; for then, we are sure that it will ever triumphantly maintain its ground. Without its dangers, and divested of its objections, no other resource will ever be dreamed of. *The most unfavorable construction that can possibly be admitted with regard to it is, that there may be the same risk of death from small-pox after vaccination, as of death in the early stage of inoculated small-pox; but then let it be remembered that the risk of small-pox infection is, after vaccination, indefinitely postponed—is infinitely less than it ever was under the best system of inoculation, and is, in fact, reduced almost to nothing, since in every epidemic the larger number of vaccinated persons wholly escape.*

We propose to establish in the public mind the utility of vaccination, by recording, in chronological order, a few observations of eminent men in different countries, illustrative of the subject in both points of view. They will serve not only to convince us of the value of that practice, but to show that although its virulence and frequency are much lessened, small-pox still stalks about the world too boldly to be neglected with impunity.

In the year 1819, an epidemic of peculiar malignity ravaged Scotland, and as an evidence of this fact, it is stated that an unusual number of persons who had before had true small-pox were *re-attacked* during its prevalence. Nevertheless,

we find Dr. Thomson, one of the first physicians of that country, and of the present day, stating, "that he has the pleasure to know, that in *every instance* in which, during the present epidemic, there has been even a single mark of vaccination having taken place, the *modifying power* of cow-pox has been most completely and satisfactorily demonstrated. Only six deaths from small-pox after vaccination have, in three years, been put on record, and in every one of them were just doubts entertained of either the appearance of the scar, or of the eruption." In a subsequent letter to a high medical functionary, Dr. T. observes: "It has been impossible to see the general mildness of the varioloid epidemic in those who had undergone the process of vaccination, and the severity, malignity and fatality of the same disease in the unvaccinated, and not to be convinced of the great and salutary powers of the cow-pox in modifying the small-pox, in those who were afterwards affected with this disease. Proofs cannot be imagined more convincing and satisfactory, of the incalculable benefits bestowed upon mankind by its discovery than those I have had the pleasure of witnessing."

In an epidemic in the same country in 1822, "a vast proportion of vaccinated persons," says Dr. Reed, "resisted the utmost exposure to variolous infection; and for one case in which vaccination failed in any measure to secure the constitution, ten have shown themselves invulnerable, even when the mischief seemed most concentrated." In 1823--24 and 27, the small-pox prevailed epidemically at Philadelphia, and as in the latter year it was peculiarly severe, a Committee of the Medical Society of that city, were appointed in 1828, to collect facts in relation to it, upon the ground "that it had been currently reported, that several members of the profession had lost their confidence in vaccination to such a degree, as to render them *willing to recur to the practice of inoculation.*" The whole of this admirable paper is a triumphant vindication of the discovery of Jenner, and replete with the most consoling reflections to the friends of vaccin-

ation. "The question," the committee say, "which agitates the public mind is this: Shall we be safe from small-pox, if we are vaccinated? The committee are prepared to answer from the documents now on the table—Yes; these documents incontestibly prove it. Much of the hesitation and error at present prevailing among us, has arisen from the circumstance, that the real friends of vaccination believed and boasted too much; and it seems to us, that if the public *could once be completely enlightened as to the real degree* of its efficacy, the few exceptions would not weigh one feather against the general tenor and amount of our success, general and perfect." The committee next introduce the statement of Drs. Mitchell and Bell, that in 1823, of two hundred and forty eight cases, of which ninety one were fatal, *one vaccinated person only died*, while *six perished* who had before *had natural, or inoculated small-pox*; and then publish letters from their most respectable members, among whom are Drs. Physick, Coxe, (the founder of vaccination in Philadelphia,) Dewees, James, Mitchell and Parrish, every one of whom concurs in preferring vaccination to inoculation, and in asserting his confidence in it to be undiminished. "We may," they conclude, "without the least want of candour, come to the decision, that only one death from small-pox after vaccination has occurred in Philadelphia, during the year 1827, among eighty thousand persons depending on vaccination alone for their safety, and during the prevalence of a most mortal and malignant small-pox; while several individuals have lost their lives from small-pox after they had once gone through it. It appears then clearly, that vaccination ought to lose nothing of the public confidence, and as a protection from the fatal effects of genuine small-pox, it may be safely asserted, that it is, in every sense, to be preferred to inoculation. Let the public be informed of the real degree of efficacy of the vaccine virus; and let them no longer be told it will shield them from the assault of small-pox, in every instance or in every shape." To this it may be added, that

in the years 1812, 13, 14, 15, 20, 21 and 22, small-pox found not a single victim in the city of Philadelphia. Could this have happened if inoculation had been generally practised? We unhesitatingly answer, No!

In the years 1825 and 26, an epidemic of much severity existed in Germany. From Dr. Lobstein, of the Lower Rhine, we learn that by far the greater number who sickened were the unvaccinated, or those in whom it had not succeeded. That when it attacked the vaccinated, it was invariably mild, and not unlike chicken-pox; that the striking difference which was universally observed in the severity and fatality of the disease when it occurred in the unvaccinated, and when in the vaccinated, could solely be attributed to the protecting influence of the cow-pox, which, therefore, must still be considered as a most valuable, although not an infallible preventive against small-pox, which, when it does supervene is mild and modified.

Of the number and character of the cases which came under his care as physician to the Small Pox Hospital of the city of London, a most able report was made in the year 1823, by Dr. Gregory. "In a very large proportion of cases," he says, "*vaccination affords the same immunity as genuine small-pox, whether natural or acquired.* Small-pox, after vaccination, generally, but not invariably, is the mild disease called *Varioloid*; is attended with infinitely less disfigurement, because its intensity is less; and when the vaccine scar is perfect, if it does occur, it will be so slight as hardly to deserve the name of a disease. The instances in which all preservative action fails are very few in number, and of fifty-seven cases of Small-pox after vaccination, forty-four went out well in a fortnight, and of five who died, no satisfactory evidence of their having been properly vaccinated could be ascertained."

In 1824, we find by a similar report from the same distinguished physician, that of one hundred and forty-eight cases, in unprotected persons, treated in the hospital, fifty-four

died, or in the ratio of twenty-six per cent ; whilst of forty-seven cases subsequent to vaccination, there perished *none*. Now, but for the modifying influence of vaccination, sixteen of these latter persons must have died of their disease ; a proof that when vaccination is incapable of resisting effectually the approaches of small-pox, it arrests it in its course, and strips it of all its malignity. “But,” continues this zealous advocate, “*your physician by no means wishes to rest the merits of vaccination on this slender basis. He is anxious to impress upon the Governors his conviction, strengthened by the experience of another year, that vaccination is, in a very large proportion of cases, a complete security against the small-pox ; and it is highly gratifying to find public confidence actually on the increase.*” To this statement we shall merely add, that in the following year, 1825, London was again visited with small-pox of peculiar malignity. In the Small-pox Hospital were treated four hundred and twelve cases ; two hundred and sixty-three were of natural small-pox in unprotected persons, and one hundred and seven died ; of *two* inoculated persons *one* died ; one hundred and forty-seven were cases of varioloid ; of these twelve died ; one hundred and thirteen left well in a fortnight ; nine left well in three weeks ; and twenty-five had severe disease. The purity of the process in several of the fatal cases after vaccination, was doubtful from the appearance of the scar.

In the year 1829, the small-pox prevailed in the city of Charleston. A Committee of the Board of Health, which was appointed to report upon its prevalence, states that distrust had been awakened in the efficacy of vaccination, since the prevalence of varioloid. But after various quotations from foreign works on the value of vaccine inoculation, they assert, that the opinions of all physicians in their city unite in confiding in its excellence, and in preferring it to small-pox inoculation.

The small-pox was also epidemic at Turin, in 1829. Dr. Griva, of that place, a strong advocate for vaccination,

states it as his belief, that upwards of four thousand were saved by its means; that it is a better preservative against small-pox, than one attack of small-pox is against another; and that the disease modified by vaccination, is milder than when modified by a previous attack of small-pox itself.

The epidemics of the years 1818 in Europe, of Paris in 1825, and of Marseilles in 1828, induced many persons to become sceptical of any good to be derived from vaccination. The Minister of the Interior, viewing the question as one of National importance, applied to the Academy of Medicine for information to enable Government to determine whether any new measures should be taken to eradicate that most grievous pestilence, the small-pox; and M. Bousquet, who had been for ten years the Secretary of the Vaccine Committee, was entrusted with the task of drawing up an answer to the Minister's interrogatories, which answer, rich in every page with the most striking testimonials of the value of vaccination, appeared in 1833. The conviction left on the mind of this learned and extensive observer, is a strong confirmation of the paramount importance of vaccination, as an object of National, as well as of individual concern. With justice, he asks, "why should cow-pox be supposed, or expected to possess exclusively the prerogative of never suffering a relapse, when we see that diseases of the same nature, small-pox and chicken-pox, and the other eruptive fevers as well, the measles, the scarlet fever, &c., are subject to this accident? It is from having allowed themselves to entertain too high an opinion of vaccination at first, that so many persons now undervalue it far below its deserts."

M. Bousquet thus eloquently proceeds, "if there exists in the world a truth established with solidity, it is, I think, the virtue of vaccination. Wherever it is much practised, small-pox is very rare. If it shall extend to several points of the same department, rest assured that in that one, in which, vaccination has been most neglected, it will be most severely felt; if in a town, and in every town there is one, there be

a section particularly inhabited by the lower classes, among whom vaccination is for the most part but little relished, in it will the small-pox establish itself, and thence it will be propagated; describing a circle so definite, as that with a little attention, it will be impossible to overlook the cause of this species of predilection.

Again, I suppose, that in this section of the city, there exists an Asylum, a Barrack, a College or a Seminary, into which no one can be admitted, who has not been vaccinated; the small-pox will stop at its door, and proceed no further. Thus, terrible as it was at Marseilles, in 1828, it attacked no one in the College. Let there by chance reside among these large collections of individuals, one who, deceiving the vigilance of superintendents, or himself, has not been vaccinated, the small-pox will single him out amid the crowd, as if it were conducted to him by a secret intelligence, and strike him with a pitiless hand. All the pupils at the College of Blois, during the epidemic of 1826, were preserved from it, but one; the only one who was unvaccinated.

Follow it into the bosom of some poor family there is a vaccinated infant, who, for weeks, has lain with impunity, upon the same couch with its foster brother whom the small-pox has destroyed, and, to complete the perfection of the experiment, one mother has nourished them both. See there again, a nurse, who, whilst covered with the pustules of the small-pox, suckles two vaccinated children, but does not communicate to them the disease. Does the small-pox break forth suddenly, and threaten a large population with desolation; it is for you to reduce it to subjection, to arrest at once its progress, to set bounds to its spread: vaccinate all those who had not been vaccinated, and you will soon see it expire for want of nourishment. I here conclude a chapter, which it had been easy for me to prolong. I have said more than was necessary to defy the most obstinate incredulity, and to convince all reasonable minds; all that I could ever say, would fail to satisfy others."

The last instance which we shall offer of the utility of the practice of vaccination, brings us to our own time ; and thus we shall have shown that for the last fifteen years, the protective power of vaccine has been, and to this very moment is, as great as it ever was, and is as fully deserving of public confidence. In 1834, an epidemic small-pox was observed in Italy, by Dr. Festler. His testimony cannot be gainsayed. *Not one of his vaccinated patients died ;* and one case only of disease among them assumed any severity of character, but ultimately did well.

Can there now be any one so sceptical as to doubt that vaccination merits all that its admirers justly claim for it ; namely, that it is as safe, if not a safer antidote to small-pox than inoculation, without its dangers, or the evils which attend the extension of contagion ? If there be, in the face of the evidence now offered, from authority which cannot be contested or disproved, and upon which our readers may securely rely, he is sturdy indeed, and would not believe though one rose from the dead. If we shall be asked why this mass of testimony has been accumulated, we answer, because an unfounded distrust has pervaded, and does pervade the public mind of the utility of the practice, the effect of which has been to create anxiety, to lead to a neglect, if not of having it performed, at least of having that care observed which its performance demands, and to induce many to regret the abandonment of a measure which, as lovers of mankind, we shudder to hear again recommended to our adoption ; one whose tendency is to swell our bills of mortality, presently and prospectively ; to make a hospital of every house ; to sow the human countenance with deformity ; to blind, to deafen, and to decay. Nor is this all. We desire to furnish the friend of vaccination with grounds for his belief, past, present and future : to awaken from apathy, or false security, those who neglect entirely, or carelessly slur over this momentous operation ; to set at ease the anxious minds of those, who, distracted amid conflicting opinions,

know not what to think, and to satisfy those who are sceptical.

If we have not, in addition to what has already been stated, ransacked the records of every clime, and the volumes of evidence to which we could yet appeal, it is because we would avoid a tedious and unnecessary repetition of the same sentiments, echoed by all observers, at every season, and from all parts of the globe. One more quotation will perhaps be pardoned us, from the latest work published in Britain on the subject of Medical Practice. "The mysterious power of vaccination" says Dr. McIntosh, "in *preventing* small-pox, is now admitted. Experience however has taught us that it does not always succeed; but the generality of cases of small-pox which follows vaccination are very mild. I have never seen a fatal case of small-pox after vaccination; but it is curious that of more than twelve of secondary small-pox that I have witnessed, all but two were very severe." A calculation has been made by an ingenious mathematician, that vaccination, by its preventive power and by lessening the sources of contagion, *saves twenty three hundred persons daily*, throughout the earth, from a premature grave; and that it adds three years and a fraction to the term of human existence.

The *value of well performed* vaccination being thus rendered indisputable, three questions present themselves to be answered. You tell me, says an anxious mother, that vaccination has all these merits; and yet you admit that instances of its failure are yearly progressive, and that more persons are now attacked with the mild disease, after having been vaccinated, than formerly. Does then its protecting power wear out in the system with the lapse of years? Is the matter used at the present day less effective than it once was, or do other causes also contribute to produce this effect? How can I renew the one, or avoid the others? To each query we shall now briefly reply.

That vaccine inoculation ceases in time to protect the

system against the contagion of small-pox, is an opinion which has been gaining ground, not only among the public, but with the profession. But there is not wanting much able and high authority, in opposition to this view of the subject. The question is momentous, and we shall glance at the testimony on both sides. One of the earliest opinions expressed upon the subject is that of the learned Dr. Willan, a physician of the highest eminence in London in his day, and a standard authority upon the diseases of the skin. In 1806, he says, "if it is said that in some persons the power of cow-pox ceases at the end of a month, and lasts in others for seventy years, according to the strength of the constitution, the assertion is too vague to admit of an answer. Unsupported by analogy, and unsustained by facts, the doctrine of limited and partial security falls by its own weight." The respectable testimony of the physician before alluded to, Dr. Thomson, of Edinburgh, who observed with critical accuracy the small-pox epidemics which, for a space of seven years prevailed in Scotland, is opposed to the theory of a diminution of the controlling influence of vaccination by time. "Nothing has occurred," he says, "so far as I have been able to perceive or learn, to warrant this conclusion, but rather the contrary." Still more emphatic is the language of the Edinburgh reviewer of Dr. Thomson's labours. In an admirable "Essay upon the Present State of Vaccination," that gentleman observes, "the first of these vulgar errors, regarding either the inefficiency, or the *temporary influence* of vaccination, has been so fully and satisfactorily refuted by the last varioloid epidemic, that it must betray equal effrontery and ignorance to deny it in the face of the strongest evidence." And again: "with regard to the temporary influence of the vaccine disease over small-pox, and the fancy of assigning to it a dominion limited to the duration of three, five or six years, proposed in no diffident tone by an active antagonist of the practice, we can only say, that we never heard of any thing half so absurd. The degree of

influence which this ridiculous opinion has acquired, is, however, great. If the power of vaccination be real at the end of three months, or three years, it is equally so at the end of thirty; and it is quite inconsistent with all the well known facts of its progress and effects, to suppose any thing like its *wearing out* of the system, when the latter have been once thoroughly impressed upon it. Not the slightest shadow of evidence in favor of such a supposition could be obtained, either in the practice of the first vaccinators, or in the epidemics of 1816, 17, 18, &c." To nearly the same purpose says Dr. Otto: "the state of the question of the permanency of vaccine protection, we cannot, in the present state of our knowledge, accurately determine. It seems more than probable that the influence of unfavorable agents, operating at the time of the vaccination, may have thwarted the full efficacy of the antidote." Strong as this language may appear to our readers, it cannot be considered as the unanimous voice of the profession. Doct. Mohl, of Denmark, whose work is looked upon as the best epitome on the subject of which it treats, is obliged, by the conviction of his senses, to declare, "that after the first two or three years from the date of the vaccination, the varioloid disease is both the more severe and more frequent, the greater the interval which has elapsed." He inserts the following table showing the ages at which *varioloid* occurred in six hundred and fifty three cases, viz: under three years, none; under five years, fourteen; from five to ten years, one hundred and two; from ten to fifteen years, one hundred and seventy three; from fifteen to twenty years, one hundred and eighty seven; from twenty to twenty five years, one hundred and fifty six; from twenty five years and upwards, twenty one; for after this time the susceptibility to small-pox contagion is found to be very slight. "From these facts," continues Dr. Mohl, "I confess I am led to the opinion that the power of vaccination over the human system, is, in many persons, *diminished by time*; in many, I say, *but not in all*, for I have known several

who were vaccinated twenty years ago and upwards, who have been repeatedly exposed to the contagion of small-pox without catching it. *I can by no means, therefore, agree in the opinion of Dr. Brown, of Musselburgh, (in Scotland,) who lays it down as a general law, that vaccination never excludes the variolous infection longer than five or six years.* The disposition to small-pox, is not, in all the same; and what will not take it away from one person, will forever exterminate it in another." To this opinion, thus modified, we ourselves subscribe.

It is a common idea, among those who doubt the protective power of vaccination, that the vaccine matter has deteriorated by passing through so many human bodies, and that therefore it fails to afford the same security now that it once did. Happily for humanity, there does not exist the slightest ground for this erroneous opinion. We unhesitatingly assert, that by the selection of a healthy subject, and by attention to the quality of the matter and to the proper time for taking it, as perfect and genuine a vesicle is at this moment to be produced with human vaccine matter, as can be induced on any arm by the application of the lymph from the most characteristically diseased udder in the British dominions. The lapse of nearly forty years has produced no change in its sensible effects on the skin, nor is there the slightest proof, either in the way of fact, or specific experiment, that any deterioration has taken place. In truth, experiments show the facts to be directly contrary. Dr. Thomson found that matter which had passed through a succession of at least nine hundred individuals, produced appearances exactly similar to those which were caused by inoculation with equine matter sent him by Dr. Jenner. Dr. Griva, of Turin, in 1829, found as the result of numerous investigations on the comparative efficacy of the matter taken directly from the cow, and that from the arm of a vaccinated person, that its properties were neither changed nor modified by passing through the human subject. And M. Bousquet also remarks,

“that some observers, who admit the full efficacy of the Jennerian discovery, have attempted to account for its more frequent failure, within the last ten years, by supposing that the virus was degenerated. Every thing, fact, opinion and argument, concurs to prove that vaccine has not degenerated, and has lost none of its value.” Neither is it the fact, that vaccination, while it remains in force in the system, fails to give the protection against small-pox which it once did. It never afforded perfect immunity; and however its value may have been exaggerated, and whatever may be the causes by which it is occasionally made to fail, *perfect vaccination furnishes at the present moment, as great and as complete a security as ever.* The instances of its power in the epidemics of small-pox which we have cited, prove this to a demonstration.

It becomes then, a matter of much interest to all, to be able plausibly to assign some of the reasons, by which the protective power of vaccination is in many instances rendered less perfect than it is undoubtedly, in others, capable of proving. In a work intended for popular perusal, no lengthened detail of these causes can be expected; but as by knowing the risk, we are often enabled to avoid the commission of error, we shall briefly enumerate those which are probably of most frequent operation. “It is with this,” says an able author, “as with most objects of man’s pursuits and attainments, that when once he has reached unto and enjoyed its benefits for sometime, its importance becomes less and less valued, and a criminal negligence takes the place of a dutiful and abiding gratitude.” Many families, and particularly the poor, omit, some from supineness, and others perhaps from distrust, the practice of vaccination; physicians too, are often inattentive to enforce or perform it whilst no danger threatens; nor is it always watched with that scrupulous attention which its importance demands; and hence, from either an imperfect, or a false vaccination, is engendered the risk of small-pox infection, or, at least, a

greater susceptibility to a modified attack. There are many persons, again, who appear to possess a particular individual predisposition to contagion; and who, when exposed to the influence of a highly infected atmosphere, of which peculiar condition of the air, the epidemics of late years have afforded singular examples, have been unable to resist seizures, which, but for the protective power of vaccination, must have assumed all the characters of the genuine small-pox. It has before been stated, that during the prevalence of the more virulent epidemics in Great Britain and in Europe, this fact was manifested by the occurrence of an unusual number of cases of secondary small-pox, not less than three hundred and thirty of which were collected by Dr. Thomson in Scotland alone.

It seems moreover, to be incontestibly proved, that there are conditions of the body, which, if they exist at the period of vaccination, are capable of very materially interfering with its healthy progress, and of counteracting its agency. These are the *period of teething* in children; the presence of the eruptive and other fevers, and of inflammatory diseases, as the influenza, whooping cough, &c. &c., and very particularly, the *co-existence* of cutaneous eruptions, as shingles, erysipelas, itch, tetter, ring-worm and scalled head, or which latter affections Dr. Jenner looked upon as the "grand impediments." Nor is a scrofulous habit, or an enfeebled, sickly, or irritable state of the constitution at all favorable to the *protective* efficacy of the cow-pox. The enumeration thus made, naturally suggests the propriety of preparing the system, in certain cases, to receive the cow-pox inoculation, and of guarding against too much inflammation, or febrile excitement during its stages.

We say nothing as to the quality of the matter of infection, because as a physician only can judge of all the circumstances of the case, a *physician alone* ought to be employed for the performance of this little measure, and he will be too conscientious to use any but that matter, which he believes

to be suited to the end. It seems highly probable that the neglect of many of the points which have been thus thrown together, is a frequent cause of that susceptibility to disease, which persons, falsely said to have been vaccinated, occasionally manifest when exposed to concentrated contagion; and that upon them, rather than upon vaccination, are the disappointments to be charged. Let it, moreover, be remembered, in estimating the number of those who suffer varioloid after vaccination, that it is upon vaccination only, that much the largest proportion of mankind now relies; that the number of persons to be attacked with secondary small-pox is therefore much less than it once was, and the number of those who are the subjects for varioloid vastly increased. The discredit which these ill successes have, to a considerable degree, thrown upon that measure, has of late, induced practitioners to recommend, and the public to require the

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of those persons, who at an antecedent period had undergone vaccine inoculation. In a double point of view this practice is worthy of the highest commendation, and earnestly do we hope to see it generally adopted.

As a general rule, it may safely be stated that when the cow-pox has been once communicated, and fully established in the system, although it may be received a second, a third, or a greater number of times, it seldom assumes the same *perfect form* in which it *at first* appeared, but oftenest a modified shape. It is evident therefore, that the appearance of the second vesicle is to be considered as a fair criterion of the degree of protection offered by the first vaccination; and Dr. Jenner, who thought that the security which it offers is in a direct proportion to the degree of perfection of the vaccine process, consequently advised vaccination to be repeated as long as any effect was produced. Even when the severity of the inflammation on the arm, and the appearance of the characteristic sore which vaccination induces, are

such as to deceive the non-professional observer, there is yet a difference in the time of its "maturation and desiccation," which to the physician plainly indicates its modified, or, if the term may be allowed, its vaccinoid nature. In the perusal of the following facts, we beg of the reader to remember this circumstance. We are furnished by Dr. Otto, with a tabular review of *one hundred and eighty-nine* cases in which *revaccination* was performed; of them, twenty-one had perfect or nearly perfect vesicles, and were supposed to have wholly lost the protective influence of vaccination; in seventy-six it produced only inflamed points, and was in full force; in eighty-three, the effect was spurious cow-pox, and showed a high degree of protective influence; and in nine cases appeared pimply elevations and some fever. Thus of one hundred and eighty-nine individuals, twenty-one only ran the risk of suffering to any extent in an epidemic of small-pox, and it is curious that in all of them the first vaccination had been only very recently performed.

In 1831, a very alarming epidemic of genuine small-pox appeared in different parts of Germany, and threatened to commit great havoc both in civil and military life. The army physicians recommended the general vaccination of all recruits, *whether previously vaccinated or not*. Of six thousand and twenty, vaccinated at Erfart, more than a third had genuine cow-pox vesicles, and *not one* of them was seized with the contagion during its prevalence at that place. In the second division of the army, nine hundred and twenty-five out of two thousand seven hundred and eighty-four *who were vaccinated*, proved susceptible of the virus; and in the next year, a still higher proportion was obtained. These are extensive facts, and scarcely less triumphant as it regards the value of the cow-pox, than important as testimonials of the propriety of Revaccination. The results of the Revaccination of four thousand recruits in the Royal army of Wirtemberg, were as follows: of those in whom vaccination remained protective, there were forty-six per cent; of those

in whom it was effected with good success, thirty per cent ; of those with modified, or partial success, twenty-four per cent. Dr. Festler, in fifty operations, found that *two-thirds resisted it altogether* ; twenty only became specifically affected ; in a few, it was pretty regular ; in others less so ; but in none, by any means perfect. It really appears unnecessary, after these details, to urge the propriety or advantages of Revaccination ; but it is a subject of interest to inquire at what period after the first infection, the second ought to be attempted.

In the present state of our knowledge, we are unable to offer more than a conjecture in reply to this question ; physicians have differed exceedingly as to the limits which they have assigned to the protective ability of vaccination ; and whilst some confine its duration to five, others have extended it to four times as many years. The experiments of Dr. Mohl appear to prove that between the ages of three and fifteen years, the varioloid is of most frequent occurrence ; whilst M. Luroth, a French physician of eminence, tells us that in all his trials, *revaccination before the age of ten years, never developed the true and complete eruption*. Beyond that age it succeeded in a certain number of cases, and in a proportion which seemed to him to be in a direct ratio with the interval which elapses between the first and second operations, the longer the interval, the greater being the chances of success. This period then, seems to afford a safe average estimate ; the necessity of a third vaccination being judged of by the effect of the second upon the constitution. After *thirty years of age*, it would appear that the susceptibility to varioloid infection is so slight, as scarcely to call for renewed measures of protection. At Geneva, and in other parts of Switzerland, it is becoming a prevalent custom to submit all children to a second vaccination, five years after the first is performed ; and indeed, it was found, during the late epidemics, that although separate small-pox pimples, in many instances, appeared on those who had been only once vacci-

nated, *no single example* was known in which they were seen upon individuals, on whom it had a second time been performed; as if the second vaccination had exhausted the capability for variolous infection. "Let us hope that ere long, an accumulation of facts will dispel the doubts which now hang over the subject; but let us in the meantime repose in vaccination the confidence which it so well deserves; for, even in the most unfavorable solution of the point in dispute, all that would be necessary to make it a perpetual security, would be to submit once again to this very trifling operation." It seems scarcely necessary to add, that when during the prevalence of an epidemic, the least doubt arises from the appearance of the scar or from other causes, as to the efficacy of the first vaccination, or in the event of any peculiar exposure to contagion being sustained, revaccination should forthwith be performed as a precautionary measure. A remarkable instance might here be cited, in which the performance of vaccination during her attendance upon his illness, preserved the unprotected nurse of a young man labouring under severe small-pox, the nature of whose malady was unknown for some days after her services commenced. The vaccine process was happily instituted, and the woman remained unharmed amid the hazards of her situation. The possibility, under similar circumstances of imminent danger, of vaccinating safely the *tenderest infant, one even of a few hours old*, furnishes an additional argument in favour of the cow-pox; a child is thus secured by an innoxious measure, who could not possibly have survived an attack of small-pox induced by inoculation.

Instances are not wanting to show that children of weakly and debilitated constitutions, have had their health wonderfully and rapidly restored by passing through the kine-pock, who, had they been subjected to natural or inoculated small-pox, would in all probability have fallen victims to it. The general excitement, says a late French work, with which it is accompanied, and the slight fever by which it is attended,

have appeared to augment in a favorable manner the activity of the functions, the vitality of the feeble, and, as foretold by Jenner, to bring about the solution of several chronic affections. The reports of the Central Committee of Vaccination in France, abound with facts of this nature. The diseases in which vaccination is found to be often curative are specified by Dr. Griva to be agues, inflammation of the eyes, scrofula, whooping cough,* and the cutaneous eruptions; and to support his views, he adduces numerous observations, as well from his own experience as from that of others.

Having thus replied to the three questions which we had proposed to ourselves, and taken a rapid survey of the present condition of vaccination, we shall, very briefly examine some popular errors which prevail respecting it, and tend to discourage its performance;—errors, which like all others, originate in an imperfect acquaintance with the history and facts of the subject, and in partial and erroneous views of its effects. By many it is pretended that the diseases of infancy and childhood are rendered by it more frequent, more severe, and more fatal. “A foolish and ignorant assertion,” says the Edinburgh Reviewer, “an idle and frivolous objection. It is surely unnecessary to say, that it has no power to prevent their aggression, neither is the proportion greater to the general mass of diseases, nor is their proportional mortality greater to the general mortality, than previous to the introduction of vaccination.”

“The detractors from vaccination,” says M. Bousquet, “have laid to its charge a host of evils, to which it is certainly an utter stranger. However gratuitous, however absurd this accusation may be, it has its dangers; either as it flatters the prejudices of the people, or because the early years of life are exposed to several trials, which many children do not successfully resist. The public always decide upon the operation of vaccination with regret. As they re-

* Of late years, the special performance of vaccination during whooping cough, has been found successful in mitigating its intensity and shortening its duration.

gard the small-pox in the light of a salutary discharge of noxious humors, we attempt in vain to persuade them that two pustules of a benignant eruption are as effectual as the crop produced by inoculation, whence issues a purulent fluid, which they take to be a poison concealed in the depth of internal organs. Were we to endeavour to convince them of the incorrectness of this latter opinion, they would neither understand us nor believe it. If it were to be actually proved even, that certain diseases of infancy have become more frequent during the forty years in which vaccination has been practised, it would require a very nice comparison to ascertain whether there occurred most cases among vaccinated, or unvaccinated children. Until this is done, this accusation against vaccination will scarcely deserve to be refuted. I loudly protest against a system of reasoning, which allows to that process only the sorry merit of substituting one malady for another. Were this so, how fearful should be the ravages of the destroyer among the wealthier and higher orders of society; yet the very reverse obtains, for it is surely among the poorer classes, with whom vaccination meets a less welcome reception, that the mortality among children is *greatest*. The inevitable conclusion therefore is, that vaccination leaves the system in the very same state in which it found it, save that it extinguishes its aptitude to variolous infection."

Again, it is a very common idea that vaccination has introduced new humors, and caused new eruptions. This is contrary to the opinion of all physicians; and is positively contradicted by the testimony of all public charities, and by all statistical details of diseases up to the present time. "Not a single patient," says Mr. Trye, surgeon to the Infirmary of the city of Gloucester, in that county of England in which the *natural cow-pox* has been prevalent from time immemorial, "*many hundreds of whom have had cow-pox more severely than after vaccination, has applied in half a century for relief for any disease, local or constitutional, which he or she imputed, or pretended to trace to vaccination.*"

Yet more general is the dread entertained by parents, of the introduction, through the medium of the matter, of other known diseases into the system, by the performance of vaccination. It is very certain that we sometimes see the itch and other specific affections coincide with, or supervene upon vaccination; the health too, becomes occasionally impaired after it, and thus room is afforded for an imputation upon the quality of the matter introduced. There are in this world certain people, whom no arguments will convince to the contrary, when once they have imbibed a prejudice; upon this class of readers all reasoning is thrown away. But to the intelligent, and to those who are open to the force of argument and of reason, we may venture to express the firm belief which we entertain, *that from the matter of a vaccine vesicle no morbid poison can be absorbed*, even although the person from whom it is taken, shall at the time be labouring under some contagious malady. Not that we would ourselves employ, or justify others in employing matter from such a source; but for very different reasons. We have before observed that any co-existing affection of the bodily health interferes with the protective power of the vaccine process, and by the matter from such a constitution, we doubt the possibility of satisfactorily protecting another person. But we do conceive that the very process necessary for the production of the matter, must destroy all possibility of its being impregnated with any noxious humour, and consequently, of its communicating infection. If, by gross carelessness, a foul and filthy lancet shall be used in vaccinating, it is perfectly well known that the vesicle upon the arm will depart from its usual characteristic appearances. Scrofula, and diseases of the general health, are beyond the reach of this suspicion, because it is notorious, that they depend upon a constitutional peculiarity and feebleness of system, combined with various debilitating causes, and are not communicable by inoculation. In our reading upon this subject, we have failed to observe the least allusion even to the

probability of the occurrence, and our enquiries among our professional brethren of experience, have not made us acquainted with the existence of any cases of such an accident. It is evident to us, therefore, that this event must be exceedingly uncommon, if it be not a physical impossibility. It is no doubt, extremely convenient, when a child, after having been vaccinated, shall become the subject of some loathsome eruption, depending in all likelihood on direct contagion, or gross feeding, to charge it upon the quill or lancet of the physician, or to the effects of the cow-pox; but we believe that in a vast majority of instances, such an explanation is far from the truth, and that the mischief admits of an easier and more natural solution.

The learned Bousquet has forcibly urged a similar doctrine in these words: "By the world it is generally believed that a great selection may be made between different qualities of vaccine matter; and every one, therefore, is anxious to be supplied with the very best. Nothing can exceed the solicitude of mothers upon this point; they are unsparing in their interrogatories as to the health, not only of the child from whom the vaccine was taken, but of its parents, and grand-parents; and they would like also to be satisfied about that of their remotest ancestry. Why is all this? Because it is supposed that the vaccine matter varies in different individuals, and that, in its composition, it follows every variation, good or bad, of the vaccinated person, each communicating to it some of its properties. If the person be scrofulous, the matter must produce scrofula; if tettery, tetter must result, and so on for all the ills to which flesh is heir.

I have known mothers in whom this idea had taken such deep root, that they would have preferred to expose their children to all the hazards of impending small-pox, to running the risk of an unhealthy vaccination. What are the facts, to say nothing of analogy? Vaccine matter has through ignorance, been taken from infants affected with the most peculiar of all impurities; but the vesicle has always been

reproduced in all its energy, and without giving rise to any occurrence by which the foulness of its source could have been suspected. Vaccine matter has been taken from those who laboured under the itch; but never has the itch been mingled with the result of the vaccination. Facts of this nature it were easy to multiply. Let it be remembered that the vaccine matter can produce *only* the vaccine disease. For insisting upon this truth, I ask not pardon from the Faculty; among them it is uncontradicted; but I would, yet scarcely hoping to succeed, impress upon parents a conviction of its fidelity. The very tenderness which they bear to their offspring, renders it the more difficult to persuade them to it. But, unless necessity demands of us a different line of conduct, let us always comply with the feelings of the parent---stoicism is not *our* philosophy."

Occasionally, and but very seldom, the inflammation from the vaccination runs high, and induces swelling under the arm-pit, and an erysipelatous blush upon the arm. The former, let it be remembered, is not more dependent upon an imperfection in the matter, than the same effect would be were it to follow, as we have seen it do, a wound in the palm of the hand; and the latter is an evidence of the existence of a state of system which a thousand causes are capable of developing, but which art cannot foretell. We need scarcely say, that the person thus affected should be referred to the care of his physician. The trifling pimply eruptions which occur upon the bodies of healthy and full-habited children after the operation, but which are neither needful, nor its natural effect, and which may arise from the slight febrile movement it creates in the system, are in their nature benign, and require but the remedies of the nursery to dispel them. Such are the hazards of Vaccination, so mild in its progress, so precious in its consequences; seldom has man been allowed to possess so great a benefit for a smaller price!

Although children suffer more from attacks of small-pox

than grown persons, and in the ratio of fifty seven to twenty two, it is rare for them to be affected with any eruptive fever before the age of *six months*. This fact and the prejudicial tendency of teething before stated, point out the *sixth month* as the period beyond which vaccination should not be delayed ; but as upon an emergency delay might be fatal, it is satisfactory to know that the infant even of an hour old, may be, and has been vaccinated with perfect impunity ; it is never too early to vaccinate, nor is it ever too late. They only, it has been said, are exempt from the small-pox, who do not live long enough for it to attack them. The *chances of infection* also, are greater when the vaccination is performed in *two* or more places at the same time. This is the European custom, whilst among us, more than one vesicle is seldom engendered. The National Vaccine Institution of Great Britain has advised that two should be formed, and one of them be permitted to go through its course unpunctured and undisturbed. The experience of the Scotch vaccinators during their late epidemics, did not afford proof that this process possessed any peculiar advantages ; nor did the taking of the matter from a single vesicle, its rupture or compression, render the protection of the person so treated, less complete. Parents often revolt at a request for a little vaccine matter, will not allow their children to be touched, and refuse to return what has been given to them. Positive facts allow us to assert that it is wholly unnecessary for the vesicle to reach its final period uninjured, to enable it to preserve all its advantages. Neither does the taking of the matter, if performed with delicacy, add in the slightest degree to the soreness or inflammation which already exists. Nevertheless, it seems proper upon the whole to induce at least two vesicles, and to guard them attentively from disturbance during the progress of their early stage ; by an avoidance of all causes of constitutional excitement, and attention to existing symptoms, to give to this beautiful and beneficent process every advantage of which it is sus-

ceptible; and thus to diminish, as much as possible, the unjust reproach which it occasionally receives.

Vaccination often requires to be several times repeated before it can be made, as is technically said, "to take." There are seasons of the year, and hidden conditions of the air, in which it is very much more difficult to induce it, than in others; but other minor causes, and very hot weather in particular, operate to render its success doubtful. Some, again, there are who wholly resist it, but we may be well assured, that where there exists resistance to the operation of cow-pox, there will be an insusceptibility to that of small-pox also; and that the danger which that person runs is trifling indeed. It must have occurred to every parent to observe that the most careless vaccination often succeeds perfectly, when a more elaborate one is of no effect. An instance was mentioned to us by the lady herself, in which, having imbibed a most unfounded prejudice against the quality of the matter which he had introduced into it, she sucked the arm of her infant for some time the moment the Doctor's back was turned, in the hope of interfering with the success of his operation. In this, not less than in her apprehension, she was disappointed; a beautiful vesicle was in due time developed, but to this day she has perceived none of its dreaded concomitants.

Until the *fourth day* after the vaccination, it is impossible to form any opinion as to the probability of its success. Before this period, nothing but the little scratches upon the arm are visible. A small pimple, looking like a fleabite, is then perceptible, which progressively increases, and on the ninth day from the date of the operation reaches its greatest intensity; *a very vivid red circle of inflammation then surrounds the vesicle, which has its centre depressed and is covered by a brownish crust, while its sides, distended with matter, form a white rim on the circumference.* Upon the appearance of this *red circle* the Scotch physicians securely relied as a test of successful vaccination. On the twelfth day the vesicle be-

gins to dry, and the scab which succeeds, assumes the appearance of a tamarind pit, and falls off on, and not before, the *twenty-first or twenty-fifth day*. Such is the progress of every genuine vaccine vesicle in persons not previously vaccinated; and as a criterion by which to judge of the amount of protection, the steps of the process deserve attention. Every vaccination in which the arm presents different appearances, unless it be a re-vaccination, had better be regarded with suspicion, and the operation should be repeated at some future day.

With a brief remark on the value to be attached to the *cicatrix* or scar left after vaccination, we lay down our pen. Although it can hardly be denied that there exists between the degree of the varioloid disease, and of the perfection of the scar, a remarkable connexion, ample experience proves that the latter alone must never be permitted to create an obstacle to re-vaccination. The perfect scar is circular, distinct, and presents the appearance of being indented with little cells, bordered by radiating lines; it is hard, small, ought to be capable of admitting a pea, and not to be larger than a sixpence, nor irregular. Notwithstanding this, the varioloid occurs in some whose arms present distinct and well marked cicatrices, whilst others have escaped entirely upon whom the traces were little obvious. But the latter occurrence ought to command attention to a re-introduction of the kine-pock into the system, for such persons cannot be considered to be secure.

In submitting the preceding remarks to parents, and to those who have the care of children, we trust that we have been actuated by no unworthy motive; confident of the value of vaccination to mankind, we have been tempted, by a sense of duty, and by that desire of alleviating suffering and preventing disease, which should animate every member of our benevolent profession, to set before them, in language clear we hope to every comprehension, the grounds upon which they may entertain a just confidence in its utility; and to

attempt to satisfy, on some points, that very natural and necessary curiosity which many possess, but which is seldom gratified.

“ Vaccination must not be represented as an infallible and absolute preventive of small-pox ; nor must it be reprobated as an idle ceremony, nor an injurious practice. Experience has lent her aid, and we may now be said to be in possession of most of the elements, so far as human wisdom can foresee, to determine aright the actual and genuine influence of the vaccine disease over small-pox, and the degree of protection it affords. Than the fact of this influence, none is established with greater certainty ; and while the practice of inoculating small-pox is injurious in perpetuating and disseminating the virulence of a dangerous, severe, and often fatal disease, the substitution of cow-pox, by diminishing the extent of the operation of this infection, tends indirectly to diminish the disease which it generates, and lessens its evils. It is only since the practice of cow-pox inoculation began, that the horrid disfigurements of the face, the loss of eyes, &c. &c. have been uncommon and infrequent : and they are now to be looked for only in the countenances of those who were born before vaccination was introduced, or who, though born since that era, have not enjoyed its inestimable blessings.”*

We have carefully abstained from the slightest interference with the duty of the medical adviser ; and if we are not mistaken, have afforded no small evidence of a necessity for his services. The diminution of sickness, and particularly of an epidemic malady, may not appear to be much to the interest of the physician ; yet, as physicians, we exult in the fortunate discovery of our illustrious brother. If these pages shall awaken some from the slumbers of neglect and supineness, and shall convert others from the torpor of unbelief ; or if they shall serve to establish in the minds of the friends of

* From the Edinburgh Medical and Surgical Journal for October, 1826, which contains one of the most practical papers ever penned, entitled “ The Present State of Vaccination.”

vaccination, an increased confidence in its advantages, and a determination to extend them, they will not have been written in vain. We would that against every other form of pestilence which walketh in darkness, we could oppose, with equal confidence, a defence as sure as the "Ægis of Jenner;" and then, whilst we lessened the amount of suffering and the causes of death, should we add new laurels to the healing art, and derive new arguments in favor of its utility.

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